



MASENO UNIVERSITY

UNIVERSITY EXAMINATIONS 2012/2013

SECOND YEAR SECOND SEMESTER EXAMINATIONS
FOR THE DEGREE OF BACHELOR OF SCIENCE IN
EARTH SCIENCE WITH INFORMATION TECHNOLOGY
(MAIN CAMPUS)

NGA 209: GIS AND MODELLING

Date: 23rd July, 2013

Time: 11.00 a.m. – 1.00 p.m.

INSTRUCTIONS:

- ◆ Answer Question ONE and any other TWO questions.
- ◆ Sketch maps and diagrams should be used whenever appropriate.

NGA 209: GIS AND MODELLING

1. Discuss the benefits of using Geographic Information Systems (GIS) in natural resources management. (14 marks)
 - b) Examine the following concepts as used in GIS
 - i. Spatial indexing (6 marks)
 - ii. Vertical layering (5 marks)
 - c) Explain the importance of User needs analysis in organizing data for a GIS project. (5 marks)
2. Explore various analytic functions in GIS environment to solve problems in earth sciences. (10 marks)
 - b) Examine the four processes that are involved in working with spatial data. (10 marks)
3. a) Write concise notes on attribute data models. (12 marks)
 - b) Examine the practical consideration in the acquisition of GIS technology for potential GIS users. (8 marks)
4. a) Examine data quality aspects and errors that affect geographic data analysis. (10 marks)
 - b) Discuss the critical features for consideration during development of an implementation plan in GIS. (10 marks)
5. a) Compare and contrast between vector and raster data models. (10 marks)
 - b) Explain the salient features an analyst needs to consider for successful implementation of a GIS strategy. (10 marks)
6. a) Examine analytical functions utilized in development of models in GIS. (10 marks)
 - b) Describe the components of a Geographic Information Systems. (10 marks)